# Concept for Employing Magnetically Active Air Absorbing Material for Induction of Atmospheric Vacuum in Nanoscale Domain with Application for Extreme High-Temperature Functional Processing

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**Introduction**

From keeping coffee warm to scientific applications, atmospheric vacuums are called for in a variety of contexts. The creation of these vacuums is often expensive and complicates already-complex manufacturing processes.

**Abstract**

Rather than attempting to mechanically pump atmosphere out of a space which one wishes to render devoid of atmosphere, when that space is sufficiently small in volume, it may be practical to use air-absorbing materials to draw air out of these spaces and into the materials. If these materials were applied and rapidly joined together prior to absorbing too great an amount of atmosphere prior to assembly, a nano-scale gap in a vacuum carafe, for example, could begin as a non-vacuum at the time of the sealing of the layers but could become a vacuum over a short span of time as the properties of the material could be crafted to forcefully pull air molecules into the interior of the material. Semi-permeable membranes can be utilized to ensure that air may only flow into the material and not back into the vacuumed space.

The width of the atmospheric vacuum does not need to be more than a few nanometers in order for thermal conduction to be prevented. By using a materials-based approach rather than a mechanical approach to creating the vacuum, not only may these vacuums be created on a more economic basis, but Micro-Electronic Mechanical Systems (MEMS) which require atmospheric vacuum could be created whereas such tiny atmospheric voids as were previously impossible as a consequence of previous mechanical limitations upon how small of a vacuum pocket could be created using traditional methods.

A novel type of data processor might be designed which is predicated upon using nano-scale vacuum pocket to prevent electrical arcing between transistors at the expense of preventing the dissipation of heat. While preventing the dissipation of heat would ordinarily be undesirable, in a system which permits for transistors to exist as a liquid (or even as a gas) and in which the scale of the transistor is as small as two atoms, such a paradigm may prove practical. After all, does a two-atom transistor composed of a metallic gas “care” what its angular orientation is? A gaseous transistor could be made to be prevented from touching the walls of the vacuumed space but would be free to rotate within that space without the functionality of the transistor being affected. All transistors within a two-dimensional layer would share a common vacuum-pocket and magnetic confinement would force the gaseous transistors to hold appropriate relative positions which enable conduction of electrons between them. When the atmosphere-absorbing

materials used have magnetic properties, they may be used to exert magnetic force which confines the transistor material to the central space of the vacuums preventing their contact with the walls and the conduction of heat or electricity.  This concept is compatible with the Ferrofluid-Mediated Lattice Processor concept of 21 December 2024 in which excess heat could be dissipated through sandwiched liquid layers with act as interconnects for transistors and such a combination of the two concepts would likely be desired as neutrino-induced cooling (ibid.) would likely be insufficient for the application.

**Conclusion**

Such a strategy for the creation of a vacuum in an ultra-narrow space would not only make vacuums more economically feasible at unprecedentedly-small scales, but could open up new avenues for research into MEMS.